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Research

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# Prioritizing the Options for Health-care waste Management in Qazvin: Using a Multi-Criteria Decision Making Approach



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## ABSTRACT

Due to an increase in population and the number of health-care centers and increasing use of disposable medical products over the last decades, there has been a remarkable increase in health-care wastes which can cause numerous problems if they are not managed properly. The present study was carried out in order to select the best method to manage health-care wastes through multi-criteria decision making (MCDM) approaches. The present study was a descriptive-applied research that was conducted in Qazvin in 2016. The study sample consisted of 28 experts belonging to 5 groups that were selected through purposefully sampling method. After the questionnaire was designed, Analytic Hierarchy Process (AHP) was employed to measure the weight of the criteria. Afterward, TOPSIS method was utilized to rank different disposal methods of health-care waste. Based on the opinion of experts of the 5 groups about the weight of the criteria and the results of the weighting phase, it was indicated that the highest weight was related to air residuals criterion and environmental impacts, and the lowest to the cost criterion. According to the study inclusion criteria, the final results of the ranking are respectively irradiation (0.83), microwave (0.79), steam sterilization (autoclave) (0.75), chemical disinfection (0.55), sanitary landfill (0.35), and finally incineration (0.29). The results of the current study indicated that according to the groups under investigation, the best methods to dispose of health-care wastes in Qazvin are irradiation and microwave. According to this finding, the policymakers can plan to make more use of these two methods in order to dispose and disinfect health-care wastes.

**Key words:** Waste Management, Multi-criteria Decision-making approach, Health-care Waste, Waste Disinfection, Medical waste, Disposal methods, Iran

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